The species which belong to the genus *Œdicerus* as thus reduced differ greatly in the structure of the feet. In all, indeed, the first two pairs of legs are furnished with large prehensile hands of a peculiar form; but in the various species these are different in some parts: in *Œ. lynceus* the lower posterior angle of the fourth joint is not produced into any process; in *saginatus* and *affinis* this is not half so long as the hand; in *norvegicus* it is so long that it meets the tips of the claws, and the hands are much broader than in the others. The same joint in the second pair of hands possesses in *saginatus* and *lynceus* a not very long process, and the hands are oval; in *affinis* both the processes and the hands are much elongated and narrow; and in *norvegicus* this is the case in a still higher degree, so that they are not much shorter than the preceding joints together, and not much thicker than these. Moreover the lower posterior angle of the hands projects into a finger, and the processes project even further than this. The third and fourth pairs of feet are entirely destitute of claws in *norvegicus*; in *affinis* the claws are small; in *saginatus* long and broad, as long as the fifth joint; in *lynceus*, finally, they are more strongly produced and narrower. In the two following pairs the same relations occur; but here a small claw is seen in *norvegicus*. The last pair of legs are, as in the other species, much elongated, and the sixth joint, or claw, is very long and conical. It may also be remarked of this species that the eye-processes are very short and broad, so that the head appears to form a hood over the superior antennæ, the flagellum of which is very short. The fourth and fifth joints of the inferior antennæ are of equal length; the second joint of the palpus of the maxillipedes is very broad; the fifth epimera are of the same height as, but much broader than, the fourth.

[To be continued.]

XLI.—*Notes on some Indian and Mascarene Land-Shells.*

By William T. Blanford, F.G.S., C.M.Z.S., &c.

1. *On the Lingual Ribbon of* Realia (Omphalotropis).

The resemblance of the shell and operculum in some forms of *Assiminea* to those of *Realia** is so great that, without an acquaintance with the animal, it is extremely difficult to deter-

* As no generic distinction has been shown to exist between *Realia* and *Omphalotropis* (the only difference being that the latter has a less thickened lip, and a keel round the umbilicus), the two cannot be kept distinct, and the genus must bear the older name of *Realia*.

mine to which genus a shell should be referred. The former is almost invariably, I believe, estuarine, living between tide-marks at or near the mouths of rivers, its favourite habitat being the mud of tropical deltas; while *Realia* is a land-shell. *Assiminea* has lately been classed by Dr. Stimpson amongst the Rissoidæ, on account of the characters of its lingual dentition; and, whether this character alone is quite sufficient connexion or not, there can be very little doubt that *Assiminea*, *Truncatella*, *Bithynia*, *Tomichia*, and probably *Acicula*, with some other genera, form a very natural group, very nearly allied to *Rissoa*.

As the only known external characters by which *Assiminea* and *Realia* can be distinguished are the relative position of the eyes and the form of the tentacles, and as the relations of *Realia* to the other operculated land-shells are somewhat obscure, it appeared to me very desirable to examine the lingual ribbon; and as I have been lately furnished, by the kindness of my friend Mr. Geoffroy Nevill, with specimens of *R. rubens*, Quoy and Gaim., and *R. globosa*, Bens., both from the Mauritius, with the animal dried inside, I have extracted the tongues, and ascertained that the teeth are of peculiar form, tænioglossate, of course, but differing considerably from those of any Gasteropod previously examined. The basal denticles on the central teeth, which Dr. Stimpson considers characteristic of the Rissoidæ, are entirely wanting.

In the accompanying sketch the teeth of *Realia rubens* are represented considerably further apart than they occur on the

Lingual teeth of *Realia rubens*, Quoy & Gaim.

lingual ribbon, on which they are so much crowded together that they cannot be clearly made out. The central tooth somewhat resembles that of some Cyclophoridæ in form; it has nine denticulations along the upper margin, that in the middle being larger than the others. The first lateral tooth has eight denticulations; the second, which is somewhat like that of *Paludina*, has six. The outermost lateral tooth exhibits the peculiar character of the divisions between the different denticulations (twenty in number) being carried down for some distance below the upper margin. This character, I believe, has only been observed before in West-Indian forms of Cyclostomidæ. The tongue of *Realia* (*Omphalotropis*)

globosa, Bens., does not differ in any important character from that of *R. rubens*; but I have not isolated the separate teeth so as to count the denticulations.

The nearest approach to the lingual dentition of *Realia* appears to be made by *Chondropoma candianum*, D'Orb. (conf. Troschel, Gebiss der Schnecken, vol. i. pl. 5. fig. 1), which Troschel regards as forming a link between West-Indian Cyclostomidæ (Licininæ) and the European and African forms (Cyclostominæ). The characters of the central teeth and two inner lateral approach more nearly to those of the latter subfamily, while the outer laterals show the peculiarity which has induced some naturalists to consider the former a link between the Tænioglossa and Rhipidoglossa.

The examination of the teeth, on the whole, tends to confirm the position assigned to *Realia* by Pfeiffer as a subfamily of Cyclostomidæ equivalent to the Licininæ and Cyclostominæ. Of course, *Hydrocena* and the *Assimineæ*, hitherto included, must be removed to other families.

2. *On* Cyclotopsis.

When first describing this genus, in 1864 (Ann. & Mag. Nat. Hist. ser. 3. vol. xiii. p. 447), I pointed out that *Cyclotus conoideus*, Pfr., from the Seychelles and Mauritius, would probably prove to belong to it. Mr. Geoffroy Nevill has recently collected specimens which completely confirm this opinion: both shell and operculum agree perfectly in character with the typical Indian species.

In the 'Zoological Record' for 1864, Dr. von Martens expresses his dissent from my conclusion that this genus belongs to the Cyclostomidæ proper, because its operculum has several whorls. Dr. von Martens must have overlooked my description of the animal (p. 446), in which I pointed out that it possessed the longitudinally cleft foot and peculiar mode of reptation so characteristic of the Cyclostomidæ—a character of much higher importance than the number of whorls in the operculum. Several West-Indian Cyclostomidæ belonging to the genus *Choanopoma* have polyspiral opercula, some of them with four and five whorls—quite as many as are found in *Cyclotopsis*. I pointed out the resemblance of the operculum in the Indian forms to that of *Choanopoma*, when first describing the genus (*l. c.* p. 448).

Dr. Stoliczka has lately carefully examined the anatomy of *Cyclotopsis*, and entirely confirms my view of its affinities. The lingual teeth are very similar to those of typical *Cyclostomata*, and do not resemble those of *Cyclophorus*.

3. *On the Genus* Cremnoconchus (*olim* Cremnobates).

As the name which I gave in 1863 to this very remarkable land-shell appears to have been preoccupied for a genus of fishes*, I propose to substitute for it *Cremnoconchus*†.

Besides the type species *C. syhadrensis*, W. Bl., a shell described by Mr. Layard in the Proc. Zool. Soc. for 1854, p. 94, as *Anculotus carinatus*, proves also to belong to the genus. This shell occurs in a similar habitat to that of the typical species, on a precipice at Mahableshwar, about 4500 feet above the sea.

The shell described by Mr. Layard was immature; in the adult the last whorl is angulate below the suture and at the periphery. The shell is imperforate, ovately conical, with the apex eroded, and 8 millimetres long by 5½ broad.

I possess a variety of *C. carinatus* with canaliculate sutures, from Torna hill, about twenty miles west of Poona. At the same hill I found a third undescribed form, differing from *carinatus* in the absence of any angulation at the periphery.

As neither *C. carinatus* nor the new form is perforated or costulated, these characters must be omitted from the generic description.

Dr. Troschel has described the tongue of *Cremnoconchus* in the 'Archiv für Naturgeschichte' for 1867; but I have been unable to gain access to the paper. I believe the result of the examination has been to confirm the position I had assigned to the genus. It is necessary to state, as I find I have been misunderstood on the subject, that the localities where *Cremnoconchus* occurs are from thirty to fifty miles from the sea.

4. *On the* Alycæinæ *and* Diplommatininæ.

One of the characters pointed out by Von Martens as distinctive of the subgenus *Diancta* (type *Diplommatina constricta*, v. Mart.) is the presence of a constriction. It does not appear to have been noticed that this character is almost universal in the genus *Diplommatina*; but in most species it takes place in the penultimate whorl, and is greatly concealed by the peristome. Examining a series of specimens from the Indian and Burmese region, I find this constriction well marked in the following forms:—

D. diplocheilus, Bens. *D. pachycheilus*, Bens.

* I am indebted to the politeness of M. Crosse, in the 'Journal de Conchyliologie,' and of Dr. von Martens, in the 'Zoological Record,' for pointing this out.

† Etym.: κρημνὸς, a precipice; κόγχος, a shell.

D. Blanfordiana, Bens.
D. pullula, Bens.
D. semisculpta, W. Bl.
D. labiosa, W. Bl.
D. gibbosa, W. Bl.

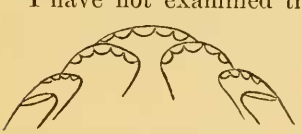
In the latter it is not so strongly marked externally; but, as in several others, there is a distinct internal rib.

In almost every species I can detect a slight constriction, even in the forms from Southern India (*Nicida*). Its being noticed in *Diancta* appears principally due to its occurring at the back of the shell; but it is far from constant in position. In some Indian forms it is on the penultimate whorl behind the lip, in others in the middle of the peristome.

The character of the shell in *Diplommatina* is exactly similar to that in *Alycæus*, and quite different from other Cyclophoridæ. There is a complete absence of the coloured markings so characteristic of *Cyclophorus*, *Cyclotus*, *Pterocyclos*, and their allies; there is, as a rule, no epidermis, or only a very thin one; and the structure of the shell is different, more horny and less calcareous. The sculpture, too, is quite different in general from that of the Cyclophorinæ.

I am therefore disposed to consider that *Diplommatina* and its various subgenera *Palaina*, *Diancta*, *Nicida*, &c., with *Opisthostoma*, ? *Clostophis*, and *Alycæus*, form a very natural subfamily of the Cyclophoridæ distinguished by the peculiar structure of the shell and the presence of a constriction. This subfamily should be called *Alycæinæ*.

I have not examined the lingual ribbon of *Diplommatina*; that of an *Alycæus* from Upper Burma (*A. Vulcani*, W. Bl.) is represented herewith. It is quite of the Cyclophoroid type; but the outermost laterals do not appear to be denticulated.



Lingual teeth of *Alycæus Vulcani*.

XLII.—*Descriptions of new Genera and Species of* Tenebrionidæ *from Australia and Tasmania.* By Francis P. Pascoe, F.L.S. &c.

[Concluded from p. 296.]

Notwithstanding the following additions to the genus *Amarygmus**, there still remains a considerable number of species,

* Dalman, Anal. Entom. p. 60. M. Blessig separates the Australian species of the genus, under the name of *Chalcopterus*, on account of the mandibles of the latter being entire at the end, not bifid. (Hor. Soc. Ent. Ross. fasc. i. p. 103.)